

WHAT IS CLAIMED IS:

1. A flexible heat exchanger comprising a pair of
5 flexible thermoplastic polymer films which are in part
fused together, whereby producing between the polymer
films a conduit pattern through which a fluid passes.
2. The flexible heat exchanger of claim 1, wherein
10 the flexible thermoplastic polymer films are flexible
thermoplastic polyimide films.
3. The flexible heat exchanger of claim 1, wherein
the flexible thermoplastic polymer films are composite
15 films comprising a heat-resistant aromatic polyimide sub-
strate film and a thermoplastic aromatic polyimide sur-
face film fixed to the substrate film.
4. The flexible heat exchanger of claim 1, wherein
20 the flexible thermoplastic polymer films are flexible
thermoplastic polyethylene terephthalate films.
5. The flexible heat exchanger of claim 1, which
has a heat conductive film on a surface thereof.
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6. The flexible heat exchanger of claim 5, wherein
a flexible film having a heat radiant metal layer on one
side is fixed to the heat conductive film.
7. The flexible heat exchanger of claim 6, which
30 has a heat resistant porous film on a surface having no
heat conductive film thereon.
8. A space vehicle having the flexible heat ex-
35 changer of claim 1 on a surface thereof.

9. An electronic apparatus having the flexible heat exchanger of claim 1 on a surface thereof.

10. An electronic part having the flexible heat exchanger of claim 1 on a surface thereof.

11. A solar heat collector having the flexible heat exchanger of claim 1 on a surface thereof.

12. A method of manufacturing the flexible heat exchanger of claim 1 which comprises the steps of placing one flexible thermoplastic polymer film on another flexible thermoplastic polymer film and fusing both polymer films in part to combine both polymer films together in part to form the conduit pattern between the polymer films.

13. A method of manufacturing the flexible heat exchanger of claim 1 which comprises the steps of placing one flexible thermoplastic polymer film on another flexible thermoplastic polymer film via a copper foil in a conduit pattern, fusing both polymer films to combine both polymer films together in part, and etching out the copper foil to form the conduit pattern between the polymer films.

14. A method of manufacturing the flexible heat exchanger of claim 1 which comprises the steps of placing one flexible thermoplastic polymer film on another flexible thermoplastic polymer film via an intervening flexible thermoplastic polymer film from which a conduit pattern is already cut out, and fusing both polymer films on the intervening flexible thermoplastic polymer film to combine both polymer films together in part to form the conduit pattern between the polymer films.

15. A method of manufacturing the flexible heat exchanger of claim 1 which comprises the steps of placing one flexible thermoplastic polymer film on another flexible thermoplastic polymer film, heating both polymer
5 films in a conduit pattern by applying heat to both polymer films via a heat insulating material in the conduit pattern, and fusing both polymer films to combine both polymer films together in part to form the conduit pattern between the polymer films.

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16. A method of manufacturing the flexible heat exchanger of claim 1 which comprises the steps of placing one flexible thermoplastic polymer film on another flexible thermoplastic polymer film, heating both polymer
15 films in a conduit pattern by applying heat to both polymer films by means of a thermal head in a reverse pattern of the conduit pattern, and fusing both polymer films on the intervening flexible thermoplastic polymer film to combine both polymer films together in an area other than
20 the conduit pattern to form the conduit pattern between the polymer films.

17. A method of manufacturing the flexible heat exchanger of claim 1 which comprises the steps of placing
25 one flexible thermoplastic polymer film on another flexible thermoplastic polymer film via a heat-insulating film in a conduit pattern, fusing both polymer films to combine both polymer films together in an area other than the conduit pattern part, and removing the heat-insulating
30 film to form the conduit pattern between the polymer films.